Reading Educational Inequalities in Turkey: Statistics and Geographic Distributions

Ela Ataç [1]

Abstract

It has now been widely accepted that a university degree is one of the prerequisites of achieving a high social and economic status. In most of the developed countries, a highly educated young generation is considered a path to a long term economic growth and a key factor in the face of a knowledge-based society. In both developed and developing countries, however, academic achievement and the provision of educational services are not distributed equally between different classes, social groups and even different geographies. Turkey is, in many ways, a good example to analyze educational inequalities where education is strongly a class related issue and there has also been a strong dimension of geography as far as the educational provision and performance are considered. The aim of this study is to analyze educational inequalities in Turkey based on school-based differences and district-level geographic distributions. In the article, statistical and spatial methods and the datasets of National University Entrance Examination (LYS), PISA, and Ministry of National Education are used. The main finding of the article is that university graduation as the main indicator of socio-economic status in Turkey is for the most part depends on regional and school-based inequalities. Inequality of opportunity in education makes socio-economic positions distinct and stable and this makes it difficult for the disadvantaged groups, in terms of the geography that they live in and the school types, to break the vicious circle in the long-term. The findings of the article, therefore, indicate how important to build long-term educational policies based on equality of opportunity.

Introduction

Education, geography of education and equality of opportunity in education are principal issues that have been on the political agenda of many countries recently. According to Butler and Hamnett (2007), this is not a coincidence. In the post-war era (after the Second World War, from the 1950s to the 1970s) that can be regarded as more egalitarian for developed countries and that in which social state was more powerful, the fact that the children of the working-class had access only to lower-quality educational opportunities was not regarded as much a problem as it is today. The middle-class

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[1] TED University, Faculty of Architecture, Department of City and Regional Planning, Türkiye, ela.atac@tedu.edu.tr

could provide their social re-production through either the relatively-better public schools in their neighborhood units and communities or the private education centers they could choose more, and the children of the working-class residing outside the well-to-do parts of the city would gravitate towards employment opportunities (such as becoming factory workers, miners, and the like) in which being poorly educated would not be deemed important (Butler & Hamnett, 2007; Lindert, 2004; Willis 1977). In time, especially developed countries moved towards increasing the education opportunities provided by the government and the period of compulsory education, as a result of which it was observed that university admission rates increased drastically in the postwar period, after the 1950s. Nevertheless, it is now widely accepted that a university degree meets one of the most basic requirements for employment. Yet access to education and academic success are, like many other things, not evenly distributed among classes, social groups, or over the geography (Goldthorpe, 1980; Raftery & Hout, 1993; Moore, 2004; Maloutas, 2007). Even in most developed countries today some social groups lag behind in opportunities provided, and the success of some groups is mostly closely related to their family, economic, and even social backgrounds (Smiths & Hoşgör, 2006; Köse, 2006). However, the matter that requires the most attention, for the purpose of achieving both a general and holistic economic success and social integration and justice, in post-industrial societies, and in information societies and knowledge economies as they are referred to, is the ways in which educational standards can be raised, educational opportunities can be provided to broader groups, and success in education can be achieved by groups from various backgrounds.

Inequalities in educational opportunities have also pointed out that the rate of literacy is very low, which is almost unacceptable in especially developed countries, and that an educational *under class*[1] is being formed (Harrison, 1985). To illustrate, the Second Postwar period witnessed waves of immigration by a group of people poor in both education and labor qualities to mainly Western Europe. As such, through immigration at a time when discourses of education and the underclass were at their peak, ethnic minority groups, which settled in the cities and remained segregated spatially and socially from the locals, were steadily formed. Therefore the most widespread research in social sciences in Europe today is still centered on the spatial and social segregation of ethnic minorities in the cities (Marcuse, 2001; Özüekren & Van Kempen, 2002), their socio-economic and educational characteristics, and the methods for integrating them into the larger society (Musterd & Deurloo, 2002). What is more, with the process of globalization, both the space and the density of ethnic migration has expanded and become varied, and the inequalities around the world in education, labor force, income, and status have become more visible. This has, in turn, strengthened the desire, among all developed and developing countries involved in the global network, for a better-educated population for the purpose of clinging to that global network and securing their position in economic competition. For example, the data of PISA (Program for International Student Assessment) conducted by the OECD (Organization for Economic Co-operation and Development) indicate that more solid and visible inequalities in education exist around the world at a larger scale (Organization for Economic Co-operation and Development [OECD], 2012a, 2012b). Moreover, when the fact that the middle-class in many Western countries has expanded is combined with the belief that a university degree definitely provides better employment, it becomes evident that education is crucial not only in climbing up to a higher step in the social ladder but also in re-creating the existing class positions (Butler & Hamnett, 2007). All of these are signifiers to how educational inequalities have become visible not only at the global and the national scale but also at the urban and even the local scale, and to education being not only a social, economic, and class-based matter but also a matter pertaining to development and global/national competition.

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[1] The term of "underclass" was first introduced by Myrdal (1964) to define the poverty cycle. Accordingly, these groups defined as underclass refers to those who were excluded from the labor force as being unskilled, uneducated and unempolyed people and who are, thus, had difficulties to escape from falling into poverty for generations.

Moving on from here, it can be argued that, in the case of education, there exist some issues of priority. The first of these is that, especially in developing countries, a long-term plan of development rests on higher-quality basic and high-school level education, one which is as fair as possible, and the other is that any issue concerning education is inevitably class-based.

When the case of education is addressed at the national scale, it is significant to evaluate the matter through macro variables in a country which focuses on "economic development" such as Turkey. One reason for this is, undoubtedly, that education is the key factor in long-term economic development for developing countries. A significant proportion of the relevant literature emphasizes the powerful role of education in the economic development of developing countries and in the elimination of social inequalities and injustices (Barro, 2013; Doğrul, 2009; Psacharopoulos & Patrinos, 2004; Dahlin, 2002; Eliasson, 1994). Considering also industrial and service sectors which have gained importance in the global process, the same literature highlights the idea that, unless matters such as educational inequality or educational performance are taken seriously, there exists a potential danger of being alienated from the labor market caused by the group of people without access to better education. The social and economic segregation of a significant proportion of the population from both the labor force and the rest of the society, and the potential polarization of different status groups constitute the basis of academic and political agenda focusing on education (Nelson & Phelps, 1966; Social Exclusion Unit [SEU], 2001).

At national and international scales, there are undoubtedly important differences in educational opportunities and performance (OECD, 2012a, 2015). Bearing in mind the fact that in the increasing economic globalization process, the cities are as competitive at the global scale as countries or regions are, it can be said that the case of education having highly-qualified staff accepted at both the economic and the international level is among the key issues of the cities. Nevertheless, despite the existence of effective neo-liberal policies in many developed and developing countries in the globalizing world and the realization of educational reform processes as a result, that country's history of educational policies, its economic, cultural, and social structure, and its government policies become significant in interpreting all of these at the national level, indicating that the experienced process demonstrates many varieties (Maloutas, 2007). As such, the matter of education is a crucial matter that should first be evaluated at the national level through its detailed urban and economic input and output before it can be discussed at the global level.

When Turkey is analyzed within this framework, it can be claimed that there exist significant differences among the country's cities and regions, and different social groups in relation to forms of educational services, standards, and performances (Tomul, 2011; Doğrul, 2009; Duman, 2008). As is known, the economic growth of countries does not necessarily lead to their development process (Sen, 1988; Rodrik, 2012). In reaching the economic growth rates indicated in government policies, economic policies do not suffice by themselves; social and political policies and reforms that would transform growth into development and enable its long-term sustainability should be formulated. Providing equality of opportunity for people in accessing basic needs such as education, health, and security forms the basis. In a country like Turkey which has the advantage of a young population, however, the primary topic to be addressed is the elimination of inequalities in the field of education.

Furthermore, education is a determining factor in Turkey in various fields, from income inequality to poverty, from social capital to economic growth. Education is the most significant factor in determining a person's social and economic status in the society. The most definite evidence to this can be found in research on poverty. For example, a study of Işık and Ataç (2011) based on the questionnaire about Household Budget Survey conducted by Turkish Statistical Institute (TURKSTAT) in 2008 points out the strong relation between a person's level of education and poverty in Turkey, and indicates that as the person's education increases, his/her risk of poverty decreases. To express this in numbers, while the rate of poverty among university graduates was at 0.9%, it was 15.1% for primary school graduates, and 36.8% for the illiterate group in the urban area in 2008. In other words, while the poverty rate for the illiterate group reached almost 40%, it remained below merely 1% for the university

graduates. In addition, the amount of money, within a whole spending budget, to be used for education varies drastically according to income groups. In 2008, the group with the highest 20% income spent 20 times more money on education than the group with the lowest 20% income. This rate has been observed to go up to 29 times according to 2014 data (Turkish Statistical Institute [TURKSTAT], 2014). All of these findings attest to the fact that, in Turkey, there exists a significant relation between social status and education level and that even the smallest amount of education (such as being an elementary school graduate) can decrease the risk of poverty by half. The determining factor in this change is, undoubtedly, being a university graduate. To illustrate, in a study of OECD where the long-term benefits of investing in higher education are analyzed, it is suggested that as far as the long-term economic benefits of higher education are concerned, the return on investment -both for the individuals and the countries- is rather high. In Turkey where the direct costs of higher education to an individual are lower, the time invested in pursuing a degree can be a major factor (OECD, 2012e). Moreover, the fact that long term economic gains of investing in higher education of women's population is much higher than that of men in Turkey is also one of the main findings in many studies (OECD, 2012e; Tansel, 1999). From this point of view, it can be said that the long-term economic benefits at the individual and country level is closely related to higher education and that for female population.

This study, therefore, aims to scrutinize the case of education, a primary tool in maintaining growing and transforming it into economic and social development in Turkey where crucial reforms have been initiated in the field of education recently and where economic growth is deemed important by means of addressing inequality, the most frequently experienced problem, and to point to the factors in educational inequalities in Turkey and to their reflections on the geography. To do this, two sub-goals are defined in the study. The first one is to indicate educational inequalities through the school types (if they are effective in inequalities or not), and the second is to depict the inequalities over geographic distributions of the achievement in National University Entrance Examination (LYS) in Turkey. While the first goal attempts to explain educational inequalities in Turkey by the differences between state and private schools and different school types, the latter one enables a broad reading of educational inequalities through the geographic and spatial variations. Much academic research has undoubtedly been conducted on issues of education and inequality in Turkey. Among these are studies relating students' attendance with families' social and economic backgrounds (Smiths & Hoşgör, 2006; Tomul, 2011), testing income inequality through educational variables (Duman, 2008; Duygan & Güner, 2006; Tansel & Bircan, 2010), and stressing the regional differences in educational variables (Tomul, 2007; Republic of Turkey Prime Ministry State Planning Organization [DPT], 2010; Ferreira, Gignoux ve Aran, 2011). These studies signify the existence of inequalities in the field of education in the country, and that these result from class-based, family-based, sexist, and regional differences. However, as different from the existing literature, this study addresses educational inequalities through data sets rarely tried in the literature to analyze both the statistics and the geographic distribution. To put it differently, this study thoroughly defines educational inequalities through public-private school distinctions, university exam achievement, school-based differences in university acceptance, and the geographic distribution of these differences. To this end, school-type differences in Turkey is, first, examined through Ministry of National Education statistics from 2012 (Ministry of National Education [MEB], 2012) and analyses achieved through PISA 2012 data sets (OECD, 2012b). At the second stage, educational inequalities are expressed, at the school level and for the geography of the country, through spatial and statistical analyses obtained by 2011 National University Entrance Examination data sets (Ankara Directorate of National Education, 2012). These analyses scrutinize the state of being a university graduate, a determining factor of socio-economic status in Turkey, according to *school types* and *geographic distribution*. Having said that, in the study, it is accepted with reference to the theoretical framework that one of the safest ways of preventing one from poverty is still being a university graduate in Turkey. On this basis, the target group in the study is defined as the 15 years old young people who have been evaluated in PISA and 18 years old students who have entered the LYS.

This study can also be seen as an attempt to read educational inequalities in Turkey, which have long been defined as one of the main obstacles in front of the human and social development, through

the country's geography and the educational statistics. This reading attempt of academic achievement is two-fold; school types distinctions and geographic variations. To this end, a couple of concepts used throughout the article with how they are conceptualized in the study and how they limit the study should be explained here briefly. One of them is the concept of "achievement". The "achievement" that used in the study refers mainly to the academic achievement of the students at LYS. More specifically, while the students who achieved the required level at LYS to attend at any undergraduate program of universities in Turkey are defined as "successful", the ones who fall below the threshold score (minimum passing score) are grouped as "unsuccessful" students. While saying this, it is also accepted that academic achievement is not directly related with the results of LYS. However, as has been widely accepted in the related literature (Goldthorpe, 1980; Raftery & Hout, 1993; Moore, 2004; Maloutas, 2007), university graduation is still accepted as the safest path to climbing up to the social ladders for the individuals in the short run, and in the long run, to help economic growth to become social development for the countries. From this point of view, the analyses with the dataset of LYS are thought to be explanatory enough to depict the distribution of academic achievement in the country, and to address indirectly how education inequalities are important in the human and social development in the long run. A limitation of this study also concerns the concept of "class" referred throughout the article to define inequality in social and economic positions. Since the data, analyzes and the findings of the study are not directly dependent on the income or socio-economic status, the "class" used here to refer indirectly to the social or economic position of a person in the society. In other words, the social and economic positions of the people in Turkey are defined as "classes" in the study and its relation with the educational inequalities is expressed with indirect comments or readings in this sense. The study, therefore, makes no pretentions to explain educational inequalities upon class-based differences or the income levels. With these in mind, the research questions that the study attempts to answer are defined as follows: Are the school types interrelated with the educational inequalities in Turkey? If so, with which mechanisms can these effects be explained? Are the educational inequalities interrelated with the geography of Turkey? If so, what kind of geographical distributions and clusters are there in relation to inequalities in education, and how can these relations be explained?

The study comprises five main parts. In the following section, which is the second stage, the theoretical framework for the study is summarized and the data sets and methodology used in the third stage are discussed in detail. The fourth stage with the conclusive findings and comments consists of two sub-sections in line with the aim and the sub-goals of the study. The first one looks into educational inequalities via the school-based discrepancies; the second defines the geographic distributions of "achievement" and "failure" at LYS through the findings. The concluding part comprises the conclusion, evaluation, and suggestions.

Theoretical Framework

An expansive literature exists on how development and growth do not connote the same meaning. To illustrate, according to Sen (1988), development may cause an increase in per capita income, yet the increase in the per capita income may not necessarily point to development. One of the main reasons for this is the unequal distribution in income. Economic growth in a country naturally effects the distribution of income in that country. Yet if growth leads to an obvious imbalance in income distribution, this does not always end in the development of that country. One of the major reasons for this is, certainly, the fact that growth and development are defined, at the present, through different means and methods that were used in the past. While growth would be defined, in the past, by the development in the production industry and the shift in employment from the agricultural to the industrial sector, it has become impossible today to consider growth independently of the institutions countries have and the investment in human capital, in line with improved technology and changing needs for growth (Rodrik, 2012). The neo-classical economy used in foreseeing long-term growth inclinations defines growth, in this framework, by the human capital and the capabilities added to the model and explain differences among countries through the changing role of human capital in different geographies (Sen, 1992; Dahlin, 2002).

Unlike physical or economic capital, human capital basically refers to the investing in individuals in order to increase their productivity in the market or social life. Among these investments, the most efficient one is defined as the education or the vocational education by Sharpe (2001). It is assumed that the returns of the investment made in human capital will show itself on the income increase at the micro-level and economic growth at the macro-level. OECD states that as the level of education increases, the income level of the individuals gets better as well, and this effect of university education on income growth is much more visible in the countries such as Turkey, United States (US), or South America where the income inequalities are relatively and traditionally high (OECD, 2016, 2012d). Furthermore, it is also estimated that early interventions that consider socio-economically disadvantaged children will help them to climb up to the social and economic ladders in the medium run (OECD, 2012c). A similar finding can be found in the work of Psacharopoulos and Patrinos (2004) where they measure the returns to investments of education. According to the researchers, the long and short term returns of education investments are higher in low and middle-income countries than in high-income countries. For this reason, education oriented human capital investments are as important as economic capital investments for the countries (Akkoyunlu-Wigley & Akkoyunlu, 2011). In the theory of *capabilities* put forward by Sen (1988), development is defined not only by economic growth, industrialization, or income level per capita, but by one's individual freedom areas and capabilities of doing so. Preventable diseases, literacy, adequate nutrition or self-esteem can serve as the examples of these capabilities. According to this, for instance, even if there is no direct contribution or share of an individual in economic development, equal access to education can be one of the factors that make him/her "capable" (Sen, 1992, 1988).

In analyses of this kind, technological development is regarded as a stable variable, and, because this is not deemed realistic, internal growth models centering on internal technological development relating to human capital accumulation are formulated. In the theory of internal growth, education is seen as one of the most basic investment areas to develop human capital (Nelson & Phelps, 1966). If the increase in human capital is assumed to directly produce knowledge, innovation and technology, it is then suggested that education can also be the trigger of technological developments that give way to the long-term economic growth (Sianesi & Van Reenen, 2003). Nonetheless, in the view point of Acemoğlu and Robinson (2012), human-based or technology-based approaches in economic growth are not adequate by themselves. The way for growth to lead to development in a country is establishing "equality in opportunities" offered by institutions of education, health, and the like in that country. Acemoğlu and Robinson (2012) define this equality through the establishment of inclusive institutions within political institutions, and emphasize that the distribution of services offered to the public would not only regulate income distribution but also provide long-term growth and human development.

Today, long-term economic growth is regarded to be linked, to a large extent, to technological development in the country, innovation skills, and equality of opportunity in education (Acemoğlu & Robinson, 2012); thereby giving way to the inescapable relation among human capital, technology, development, progress, and education (Barro, 2013). Hence, the high rate of national income and the rates of growth fall short in expressing the country's development and to achieve development and long-term economic growth, the relation between growth and human development must be established. Education is, thus, regarded crucial in the establishment of this relation. In this respect, education, as human capital's major field, may be defined as a factor, directly related to income, reducing the individual's risk of unemployment and poverty, making it possible for him/her to move up the social ladder (Köse, 2006; Butler & Hamnett, 2007). For example, a study conducted in the US at the end of the 1960s (Blau & Duncan, 1967) shows that social mobility is increasing in line with the advanced industrialization and education. Information societies or post-industrial societies with information economies, it is observed that the new production type shifts to information and technology production, and that this strengthens the societies' position in the international network. At this point, "labor" force is redefined, and the new generation labor force is defined as a well-educated and qualified population who possesses information and advanced technology and is able to use and transfer it (Eliasson, 1994).

It should be noted that behind the discussions on the meaning of information society, knowledge economies and education in the new era, there inevitably stands neo-liberal economic policies that have been influential in worldwide since the 1980s. According to Boratav (1999), neo-liberal economic policies essentially refer to a restriction of state and public expenditures. These policies which have significantly changed the regularity role of the state in providing social services, have led to the redefinition of social interests in the market conditions. Thanks to these policies, education, health and social security have become privatized, and the both the social meaning and the conditions of education provisions have changed (Sayılan, 2006). The most obvious of these conditions are the differences in the state and private basis of the educational provision and the increase in the education costs. In reference to Psacharopoulos & Patrinos (2004), even though its cost is high, the special effect (or in other words, the benefit) created by university education is higher than the social effect it creates. This is, therefore, another reason why higher education in the new era is important for individuals to achieve an upper and better socio-economic position in the short term, and for social development and economic growth in the long run. According to Dale and Robertson's (2002) work on globalization of education and the effect of globalization on education, the impact of education on the new global level is defined as context-dependent. Accordingly, institutions that one can call the state or nation do not carry subjective feature and are often influenced by supranational ideology. According to Dale (2000), the curriculum or achievement comparisons of different countries must be redefined by assessing the geographical location, development indicators, and the local traditions of the countries. For this reason, the supra-nationally agreed goals may not always coincide with the current problems of the nations.[2]

However, as mentioned above, the most important factors that disable education to be effective in human and economic development in the long run are the educational inequalities. As has been widely known, as in the case of income, education is not equally distributed to countries, cities, regions or even different social groups. According to a group of researchers, this is due to the fact that education is inherently and inevitably a class-based issue. Bourdieu, who reveals the most known conceptualization about the role of education in the formation of classes, suggest that the level of education of the people can easily be transformed into dominance in other people's struggles, with their language habits, value judgements, capital and purchasing powers (Göker, 2007). In other words, in determining the class positions in which the people are involved and their positions relative to each other, the role of the education is as strong as the capital. The only common point of economic, cultural, social, and symbolic capital -the four types of capital that Bourdieu mentions- is that education is decisive in all of these areas. In Bourdieu's definition of cultural capital, education is said to be one of the "high" values of the societal norms. The inequality of the distribution of education in society is also due to the inequality in the distribution of cultural capital, as is the case with economic capital. With respect to this view, for instance, a child living in a high-status family is better educated than a child from lower-class, a consequence of the uneven distribution of cultural capital (Bourdieu, 1996). Similarly, Bernstein, who introduces the cultural re-productionist theory in educational sociology, centers power and control relations in order to explain and understand educational inequalities. According to Bernstein who questions the inequalities of education caused by social problems, the symbolic power, and control between the teacher and the students within the school are legitimized and within the schooling process and reproduced in the course of time (Bernstein, 1960). This simple power relation can be described as a reflection of class relations that can be observed in any society. In a socially-coded and divided world, those who are positioned within certain classes and regions are redefined by the material and cultural characteristics of the classes that they belong to (Köse, 2001). This, in turn, means that classes and educational classifications are reproduced and coded inequality and power in the society.

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[2] Dale and Robertson emphasize that education in the new global era has changed the way and that a new generation of teaching and learning has been introduced, such as lifelong learning. These new methods are not directly addressed in this article, but for the new types of education in the new era see; Dale and Robertson (2009).

Goldthorpe's class diagrams are also very useful to assess the relevance between class, inequalities, and education level. According to Goldthorpe (1980) who defines class positions through professional categories, in the uppermost classes of the society, there are industrial directors, high-status professionals, administrators, civil servants and, -even though being highly criticized- there are large property owners as well. The most striking result of his work on class positions in the United Kingdom (UK) is that the children involved in the upper classes are more advantageous in finding a high-status job in the labor market than working class children. For this reason, according to Goldthorpe, inequalities in opportunity arise from the ingrained class structures of the society. Şengönül (2007), who applied the same study to Turkey also revealed that education has an important role in enhancing socio-economic status in Turkey and this role is much stronger for the new generations. In the survey, it is seen that 18.3% of people whose father are farmers and who are university graduates, were able to climb up to the Goldthorpe's top and middle class positions (vertical social mobility) where there are professionals such as doctors, engineers, lawyers and teachers. This shows that most of the individuals involved in the lower status groups where there are workers, farmers, tradesmen and civil servants, can be able to reach middle and upper classes in Turkey with the help of university education.

The said relationship among development, growth, education inequalities and class positions is applicable to Turkey, too. For instance, according to a study aiming to put forth the effect of education on economic growth for Turkey in the 1923-2011 period (Çalışkan, Karabacak, & Meçik, 2013), educational developments in Turkey positively influence economic growth, and the increase in the number of students at the high school and university level leads to meaningful and positive effects on growth. Mıhcı and Mıhcı (2008) put forth that the increase in education expenditures for the period between 1970 and 2006 affected the income level of the secondary school enrollment expenditures positively, where Güngör (1997) finds that for the period during 1980-1990, the increase in the school enrollment rate gives rise to the industrial production and economic growth. Another study that analyzes the effect of the increase in labor force efficiency in Turkey on economic growth through educational spending (Doğrul, 2009) arrives at the conclusion that education causes a positive and meaningful influence on economic growth. Güngör (2010), on the other hand, showed that the human capital defined by educational inequalities in Turkey is also unevenly distributed at the regional level and that these inequalities are one of the main reasons for the economic growth differences between the regions. In another study (Tansel, 1999), where the gender-based relationship between the returns and the levels of the education are analyzed in Turkey, it is found that there is a direct correlation between the level of education and its returns across the country, but the returns of education for women is higher than in men. This means that the positive effect of equal distribution of education by sex will more visible in the long run than in males over the female population. In a study where Akkoyunlu-Wigley and Akkoyunlu (2011) measure the value of education in Turkey over human capital and capabilities, it has been asserted that education is a determining factor for both income growth and economic growth in Turkey. Accordingly, basic cognitive and educational functions need to be met in order for the people in Turkey to perform other important functions such as being healthy or political participation which they value to be or to do. In terms of human capital and capabilities, while Turkey stands out from economically similar countries, educational opportunities are unevenly distributed by regions and sex in the country. All these findings signify that the process of economic development would benefit immensely from the allocation of more funding for education in general, and on university education in particular.

Similar results may be achieved by economic, social, technological, and educational variables through a brief evaluation conducted for the first twenty major economies of the world. For example, Table 1 puts forth values for Turkey and other OECD countries comparatively, based on World Bank Development Indicators (2013). As is known, at the top of Turkey's goals for the year 2023 are becoming one of world's ten largest economies, increasing annual GDP to two billion dollars, and increasing national income per person to more than twenty thousand dollars (Republic of Turkey Prime Ministry, 2015). When the Table is analyzed according to these goals, it becomes evident that growth does not demonstrate a proportionate growth with human capital, development, and social progress in Turkey.

As seen in the Table, Turkey is the 4th country with the highest annual growth rate and it is one of the countries with the largest youth population and fertility rates among the OECD countries as well. However, much Turkey is at an advantage, among other OECD countries, for having the densest young population the poor rates that refer to technological level and innovation skills, such as low rates in education (see Table: number of students per a teacher), high youth unemployment (16.9%), the disadvantaged position of women in the work force (%30.6) and low rates on technology import (%1.8) hamper the use of this advantage positively in the field of educational and human development. Evidently, importing advanced technology has a great influence on economic growth. From the year 2000 to 2012, this rate has gone from 41.7 (million dollars) to 560 in China, from 54.3 to 130 in Korea, and from 5.6 to 8.4 in Brazil, known for its inequality in income (World Bank Development Indicators, 2013). That the same rate has gone from 1% to only 2.2% in Turkey is notable.

Table 1. Development Indicators of World's 20 Largest Economies and Turkey

Annual Growth Rate		Youth Unemployment		Fertility		Number of Students per Teacher		Use of High Technology	
China	7,68	*India*	..	Corea	1,19	*Japan*	..	Corea	27,1
India	6,9	*China*	..	Ispanya	1,27	*Ispanya*	..	China	26,97
Indonesia	5,58	Japan	6,5	Poland	1,29	*Russia*	..	Sweden	26,51
Turkey	4,19	Germany	7,8	Germany	1,39	*Mexico*	..	France	25,9
Brasil	3,02	Sweden	8,5	Italya	1,39	*Australia*	..	Uk	21,86
Corea	2,9	Mexico	9,2	Japan	1,4	*Canada*	..	Netherlands	20,41
Australia	2,44	Corea	9,3	Sweden	1,52	*Sweden*	..	Usa	17,82
Usa	2,22	Netherlands	11	China	1,56	Poland	9,53	Japan	16,8
Uk	2,16	Australia	12,2	Canada	1,61	Italya	11,38	Germany	16,02
Canada	2	Canada	13,7	Netherlands	1,68	Germany	12,56	Mexico	15,92
Sweden	1,77	Russia	13,8	Russia	1,7	France	12,94	Canada	14,09
Japan	1,6	Brasil	15	Brasil	1,8	Netherlands	14,11	Australia	12,91
Mexico	1,39	Usa	15,5	Uk	1,83	Usa	14,7	Russia	10,01
Russia	1,34	Turkey	16,9	Usa	1,86	China	15,14	Brasil	9,63
Poland	1,26	Uk	20,7	Australia	1,86	Indonesia	15,38	India	8,07
France	0,66	France	23,9	France	1,99	Uk	15,87	Poland	7,81
Germany	0,3	Poland	27,3	Turkey	2,09	Corea	15,94	Ispanya	7,67
Netherlands	-0,5	Indonesia	31,3	Mexico	2,27	Brasil	17,26	Italya	7,24
Ispanya	-1,67	Italya	40	India	2,47	Turkey	20,13	Indonesia	7,05
Italya	-1,75	Ispanya	55,5	Indonesia	2,48	India	30,78	Turkey	1,88

This may primarily be related to the low education level and the difficulties in establishing equality of opportunity in education in the country. To illustrate, based on PISA results, Turkey rates the 37th among 72 countries in reading comprehension among fifteen-year-olds in their native tongue (OECD, 2015). When it is considered that in any country, becoming "wealthy" follows the cycle of a good education first, then training qualified employees, producing advanced technology, exporting, and achieving economic growth, it becomes evidently necessary, in Turkey with its afore-mentioned 2023 goals, to invest in education, technology, and innovation for long-term growth, to determine the fields that create inequality in education for growth to form into progress, and to design policies towards reducing these inequalities.

Method

In analyzing educational inequalities in Turkey, three data sets have been used. The first of these is **National Education Statistics for Turkey** for the year 2012 **(**MEB, 2012). Ministry of National Education and Provincial Directorates of National Education have made general information on national education available through their website by means of Turkey Education Statistics. The said data set consists of Ministry of National Education's basic data pertaining to national education, such as schooling rates, numbers of students per teacher, and classroom numbers. Out of this data set, the numbers of public and private schools and the district-level geographic distribution of these numbers have been used for this study. In order to understand the changes of this data set by year, İstanbul Chamber of Commerce (İTO, 2003) Educational Statistics, based on the datasets of Ministry of National Education Research and Planning Coordination Board, have been used to get data of the past.[3]

The second data set used in the study is PISA data set for the year of 2012 (OECD, 2012b). As is known, PISA is an international student assessment program conducted every three years in OECD countries among fifteen-year-old students as of the year 2000. The aim of this program is to assess the information and skills the students of this age group have achieved in primary areas such as mathematics, science, and reading, and to provide the results in a comparative fashion for the countries. On its own website, PISA provides the data set of the test results in various different forms. Not only all data according to country are available, but also student questionnaires, parent questionnaires, and school questionnaires are accessible by all users. From this wide-ranging data set, only scores in mathematics, science, and reading for Turkey have been used for this study to make a comparison with other countries possible.

The third data set of the study consists of **university entrance exam results** (LYS) for the year of 2011 (Ankara İl Milli Eğitim Müdürlüğü, 2012). The university entrance exam is a requirement to be admitted into any bachelor's or associate's degree program in Turkey. This system is called Student Selection and Placement System (ÖSYS) in Turkey, and the exams in the system are carried out in two steps, Entrance Exam to Higher Education (YGS) and Undergraduate Placement Exam (LYS). The data set utilized for this study is that of LYS results from 2011, published by the Ankara Directorate of National Education, Student Selection and Placement Center (ÖSYM), indicating scores and achievement information of schools at the district level. Out of this data set, achievement and school data at the school, province, and district level have been derived. That this data set includes local information makes it significant, and spatial analyses are especially referred to in this study frequently. To illustrate, by means of this data set, it becomes possible to survey achievement or failure at LYS not only in relation to school types or public/private school distinction, but also in relation to cities and the country's geography. It is also of great significance that this data set has not been utilized in the literature for spatial and statistical analyses of varying types.

One thing that should be mentioned here is that there were changes made in school types as of 2011. Until 2013, there existed five types of high schools in Turkey. These were general High Schools, Anatolian High Schools, Science High Schools, Social Sciences High Schools, and Vocational High Schools. As of 2013, the definition of high school in Turkey was changed, and the general high schools according to the prior definition were all transformed into Anatolian High Schools. As this was a change only in name and definition, this study takes school definition and distinctions according to the data sets, in line with the previous distinctions. This has proven beneficial in more clearly observing the distinctions among schools. As there were too many high school types in the LYS data set, they have been categorized in six groups based on their educational similarities. These groups may be defined as follows: Within the group defined as **High Schools** are High Schools operating formally and during the day, Private High Schools operating at night, Social Sciences High Schools, Sports High Schools, Multi-Program High Schools, Fine Arts and Sports High Schools, and Religious Vocational High Schools. Within the group of **Private High Schools** are Private High Schools and Private High Schools with Foreign Language as their medium of instruction. **Anatolian High School group** consists only of High

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[3] The relevant publication can be found here: http://www.ito.org.tr/itoyayin/0010590.pdf

Schools designated as Anatolian High Schools. **Other Anatolian High Schools are** Anatolian Teachers' Schools, Anatolian Religious Vocational High Schools and Anatolian Fine Arts High Schools. In the category of **Science High Schools** are science High Schools and Private Science High Schools. **Military High Schools and Police Colleges** are again situated in one single category. Vocational High Schools have not been included in this study as they train students according to one single vocation type and as they affect the general values immensely. Another excluded group is Open Education High Schools.

The data sets have been analyzed for every purpose through different methods. Statistics-based data have been transformed into visuals in percentage values and signed chi-square according to the selected questions. On the other hand, LYS data sets, most of which are based on exam results and include local information, have been utilized in the spatialization of the data. Two methods have been applied in this spatialization process. The first is producing distribution maps at the district level according to signed chi-square, and the other is to indicate the spatial clustering of the point representation of the data.

The signed chi-square (x^2) referred to here may be defined as a kind of normalization technique, providing significant advantages in the representation of spatial data in percentage values. For instance, when dealing with a neighborhood, on the hand, with a population of ten people, two of whom are university graduates, and another neighborhood, on the other hand, with a population of 1000 people, 200 of whom are university graduates; a percentage value based analysis will indicate that the percentage of university graduates in both neighborhoods is 20%. Moreover, if these values are represented on a map, the two neighborhoods will appear in identical colors or signifiers. However, the density of university graduates and population are actually different for the two neighborhoods. To avoid the fallacy based on the representation of these percentage values, the use of the directional signed chi-square method, based on the deviation of observed values from the expected values and frequently employed by Anglo-Saxon geographers, is advised (Jones & Kirby, 1980; Morphet, 1992; Brimicombe, 2007). The below-given formula is used in achieving these results:

$$x^2 = \frac{G_t(G-B)^2}{BG + B^2} \qquad (1)$$

The G in the formula represents the observed value in a unit (neighborhood, district, and the like), and B represents the expected value in a unit in the case of the total population being equally distributed among all units (Jones & Kirby, 1980). As such, the calculated signed chi-square expresses how much the observed value of each variable has deviated from the expected value (Morphet, 1992). One point that needs attention is the negative or positive value of the directional signed chi-square. These values are important in indicating how much the observed values deviate from the expected values negatively or positively. It could, therefore, be suggested that the signed chi-square depicts a relative assessment considering the total population and general distribution and a kind of listing. In this study, signed chi-square has been used in the spatialization of LYS data, and maps have been produced according to the distribution of these values over the space. As a result, it has become possible to achieve clusters, similarities, and differences at the district level, and to formulate them visually.

Results

Findings and discussions are provided under two sub-headings in this section in line with the above-mentioned aim and the sub-goals of the study and the research questions. The first emphasizes the educational inequalities over in Turkey school-based distinctions, and the second defines educational inequalities through the distributions of "achievement" and "failure" at the university entrance exam in the geography.

First Look at Educational Inequalities; School-Based Distinctions

On the PISA, students are graded on basic fields of study, such as science, mathematics and reading comprehension in their native tongue, and their scores are categorized into 7 groups from level 6, the highest level, to "under-level," the lowest level. Figure 1 provides the distribution of the scores students received in the field of mathematics in Turkey in 2012. To enable a comparison, the example of Shanghai, with a density of math scores at the highest level and the OECD average, and the

distribution of scores in the same field in 2003 from Turkey have been added. As it is evident, Turkey remains behind not only the extreme example of Shanghai but also the OECD average, and the math scores of Turkish students are mostly within the lowest three categories, either at the under-level, or at levels 1 and 2. Although Turkey has recorded a significant improvement according to 2003 results, the strong deviation from the OECD average (close-to-normal distribution) suggests that educational achievement in Turkey is very low when compared to other countries.
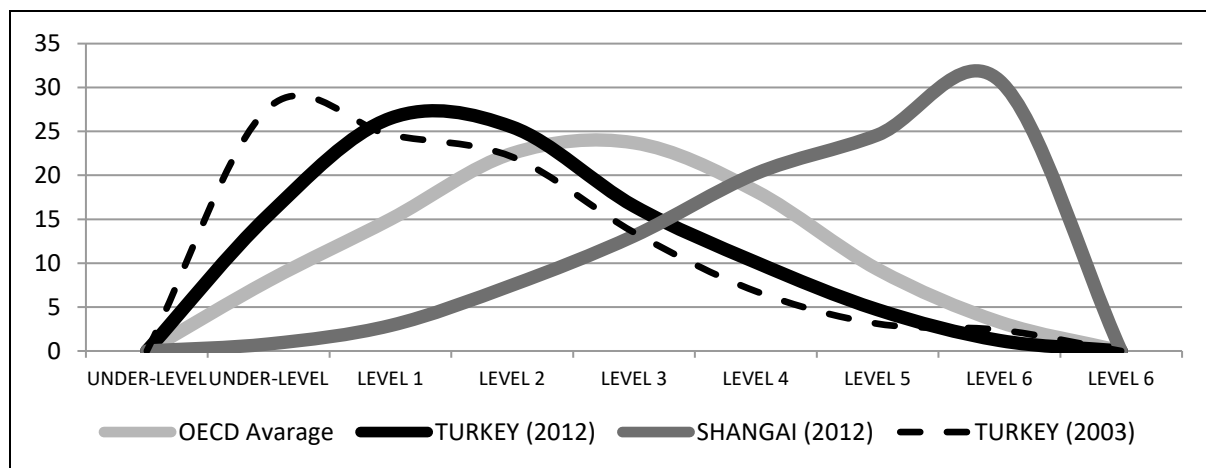
Figure 1. The Distribution of Mathematics Scores according to PISA 2012 Results

When the data are analyzed in detail, it becomes evident that, in international evaluations, the low levels achieved in Turkey in the field of education are discussed mostly through the shcool types or social and economic backgrounds or positions of the students, rather than the present education system's "student characteristics." In other words, education in Turkey is a class-based matter, and another such example is rarely observed in any other country. Indicators of this matter may be obtained through Household Budget Survey of TURKSTAT. According to this research provided by TURKSTAT (2014), the group that receives the lowest share of 20% of Turkey's national income actualizes only 8.5% of the consumption, and the 20% wealthiest group makes 37.2% of consumption spending. To put it differently, the wealthiest group consumes 4.5 times more than the poorest group in Turkey. Within this consumption framework, 64.7% of educational expenses are paid by the highest 20% group, and this is 29 times more than the amount of money spent on education by the poorest group.

PISA data, too, provide findings that suggest that education inequalities in Turkey are closely related to school types and socio-economic status of students. According to the PISA results from 2012 (OECD, 2012a, 2012d), for example, Among OECD countries, Turkey is the one where education is most closely associated with socio-economic positions. A significant indicator of this is the rates of difference in achievement among schools and within schools. All countries' differences among schools and within schools in line with the OECD 2012 results are provided in Figure 2. As is, thus, indicated, Turkey ranks the fourth highest (after Netherlands, Hungary, and Belgium), among OECD countries, in inter-school differences according to the PISA results. It has to be noted that, in this ranking, in Northern countries where educational opportunities are most effectively and equally distributed, such as in Sweden, Norway, Finland, and Denmark, these differences are at the lowest level. That is, whichever schools parents in these countries send their children to, they are able to achieve similar success results. Nevertheless, Turkey is the second country with the lowest achievement differences within schools. To express this more clearly, according to the PISA results, while schools in Turkey portray a more "homogeneous" structure in relation to school achievement, that inter-school success differences are high in Turkey. The fact that educational achievement within schools is mostly similar yet displays major differences among schools is an actual example of *school segregation*. PISA results from 2012, for instance, depict that which school a student in Turkey attends makes a 62% change in that student's success, and that the same rate for OECD countries on the average is merely 37%. All these values indicate that it is the schools in Turkey that determines the success of a student for the most part.
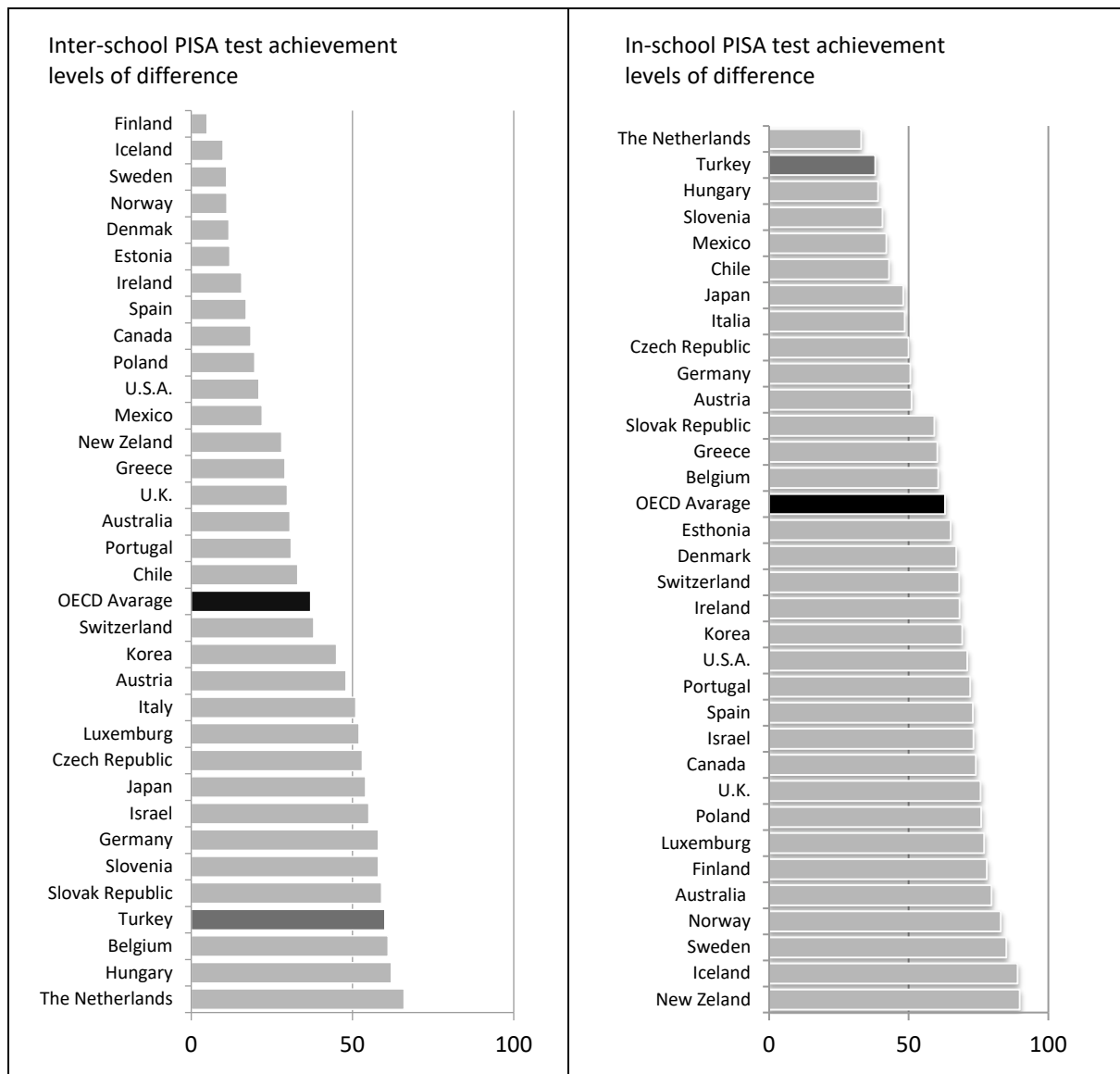
Figure 2. Achievement Levels of Difference in and between Schools for the OECD Countires, according to PISA 2012 Results

Another indicator that education is a class-based matter in Turkey as addressed by Bernstein (1960) and Goldthorpe (1980) in the related literature is the distinction in the country between private and public (high) schools. Ministry of National Education's (MEB) Education Statistics of Turkey (2012) and İTO (2003) data have led to the formation of Figure 3- the share of private and public high schools in Turkey by years. In line with this figure, from 1990 to 2013, the proportion of private schools keeps increasing. That this increase has mostly been recorded over the recent years is crucial. As of 2013, of all the high schools in the country, 27% are private, and 73% are public schools. This means that approximately one out of every four school in the country is a private one.
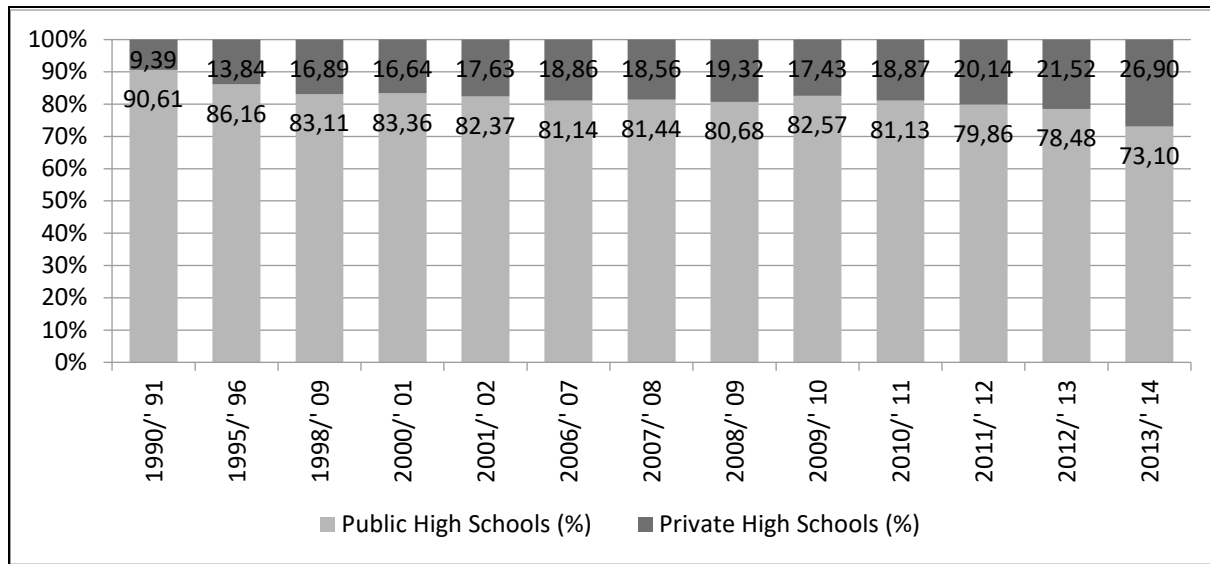
Figure 3. The Share of Private and Public High Schools in Turkey by Years

When vocational schools are removed from this data set and when the same distribution is evaluated at district level, the Figure in Appendix 1 is formulated. This Figure displays the proportion of private high schools among all high schools according to cities. Accordingly, the listing of the highest ratios is as follows: İstanbul (25.85%), Ankara (18.39%), Bursa (15.79%), Kocaeli (14.46%), İzmir (12.27%) and Gaziantep (12.33%). Bearing in mind that the average for Turkey is 9.22%, these ratios are considerably high. Hence one out of every 5 high school in İstanbul, and one out of every five in Ankara is a private high school.

When the public/private school distinction is analyzed through student numbers in Turkey, interesting findings follow. Figure 4 indicates the changes in number of students at public and private schools according to years. Accordingly, and in parallel with the increase in population and enforcement in compulsory education, student numbers have increased over the years. Yet when this increase is observed according to number of students attending private and public schools, it becomes clear that there was a sharp increase in the number of private school students compared to public school students. This is, by all means, closely related to the increase in the number of private schools, indicated in the previous figures. Nevertheless, despite this increase, when the proportion of private school students is analyzed, it has remained around 5% over the years. In other words, despite the increase in the number of students and schools in Turkey over the years, the population involved in private school education does not change drastically, and despite the increasing school and student population, approximately only one student out of twenty can only attend a private school.
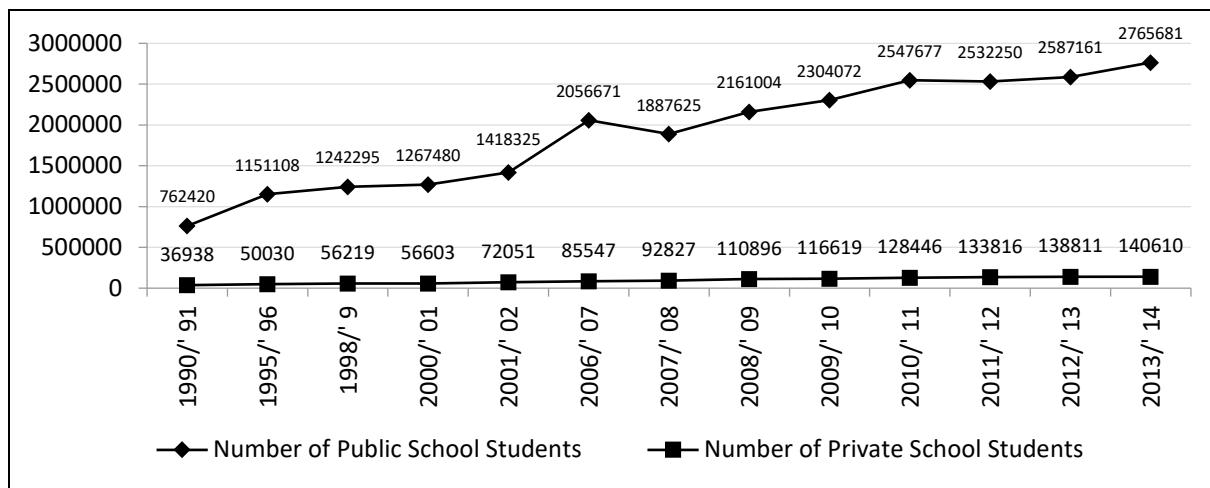

Figure 4. The Number of Students in Private and Public High Schools in Turkey by Years

LYS scores for the year 2011, published by the Ministry of National Education, are also useful in providing information on educational inequalities in Turkey. For instance, Figure 5 puts forth university placement results according to high school types. Accordingly, high schools that placed students in four-year undergraduate degree programs were science High schools, Private High Schools, and Anatolian High Schools, and students who were not placed in even two-year programs and who mostly scored below the threshold or minimum passing score (of 140) were from Military and Police High Schools. These statistics attest to how the education system creates its own inadequacies. That the General High Schools included in this Figure have scored way below the average in university placement also supports this claim. It can, therefore, be argued that, in Turkey, university placement is directly related to the type of school the student attends.[4]
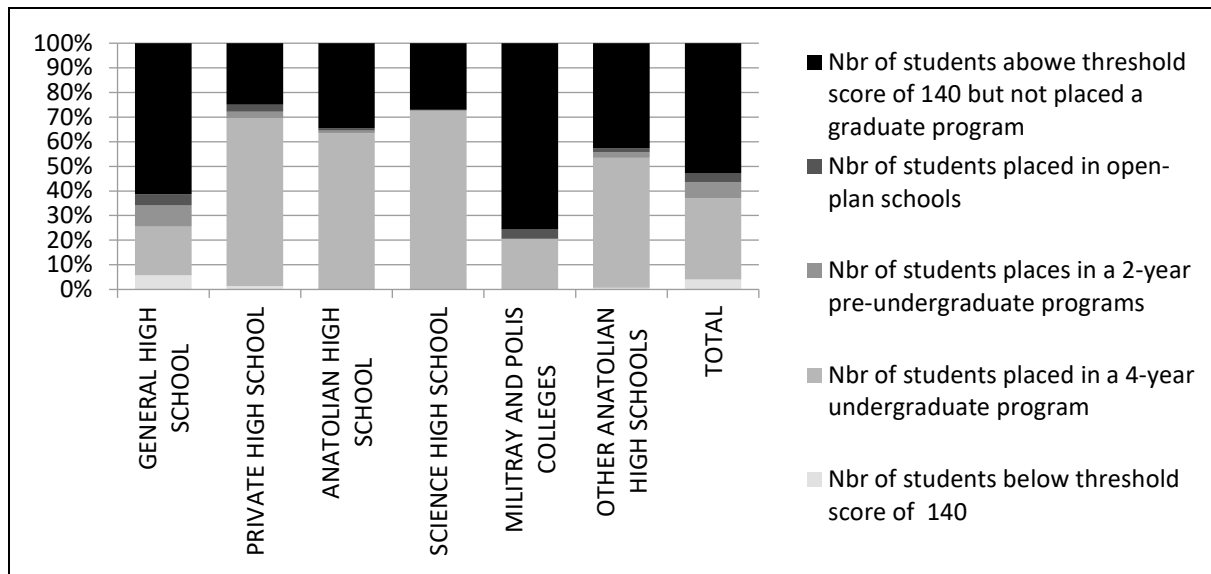
Figure 5. Student Placement Shares (%) of Different Types of High Schools in Turkey by University Entrance Examination

The picture gets further clarified when the same situation is analyzed through sub-school types. Figure 6 depicts the same evaluation according to sub-school types. When the details of general high schools, a category with the worst performance in the previous stage, are scrutinized, the low levels are performed by mostly "vocation"-based schools, such as Fine Arts and Sports High Schools, Sports High Schools, Multi-Program High Schools, and Vocational Religious High Schools. The only school type that raises the average in this group is Social Sciences High Schools. It is worth noting that more than 80% of the students in these high schools were placed in four-year degree programs. By the same Figure, it can be deduced that Private High Schools that are attended at night mostly aim for open universities. While those in the General High School group among the Vocational Religious Schools lag behind in university placement, those in Anatolian Vocational Religious High Schools score relatively better (around the country average). Among the most successful school type of science high schools, private science high schools do way better than public Science High Schools. That the private high schools in the country are more successful in university placement than public Science High Schools is noteworthy.

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[4] It has to be noted that, although General High Schools and Anatolian High Schools were all merged under the name of Anatolian High Schools as of 2013, this change was made initially only in the definition of these schools. Therefore, it is believed that this grouping stil keeps achievement distinctions at the present intact.
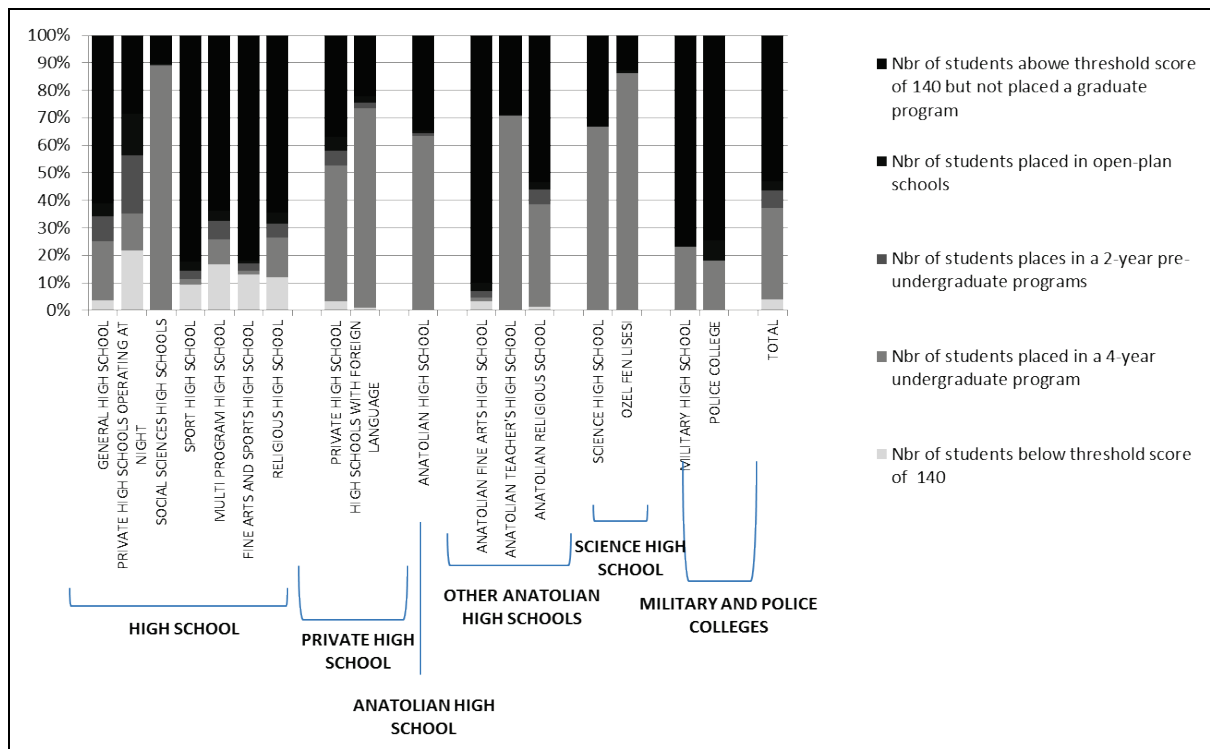
Figure 6. Student Placement Shares (%) of Sub-Types of High Schools in Turkey by University Entrance Examination

To be accepted into an undergraduate program may, certainly, not be a meaningful expression of "achievement" by itself. It should be noted that there are departments that require very low scores, and there are private universities that accept students with again very low scores. For this reason, it might be meaningful to consider this distribution according to the weighted percentage segments students are situated in based on their school types.

Figure 7 indicates the school types (column percentages) within percentage segments (of 10%) for quantitative scores according to LYS results. In other words, this Figure expresses how much of percentage segments are constituted by which school types. The basic conclusion derived from this is that Anatolian High Schools and Science High Schools mostly make up the first 10% segment. While Private High Schools train students within the first 20 and 30% segments, General High Schools fall behind the farthest, in a scattered fashion. A similar analysis may be conducted through row percentages and school types. Figure 8 indicates the rate of student placement in percentage segments (of 10%) for quantitative scores according to LYS results. That is, this Figure presents the answer to the question of which different school types place students in which percentage segment. Accordingly, when distributions within school types are taken into consideration, it becomes evident that Science High Schools place students in the first 10% segment, Anatolian High Schools in the first 20% segment, and Private High Schools mostly in the first 20% but also in the first 40% segment.
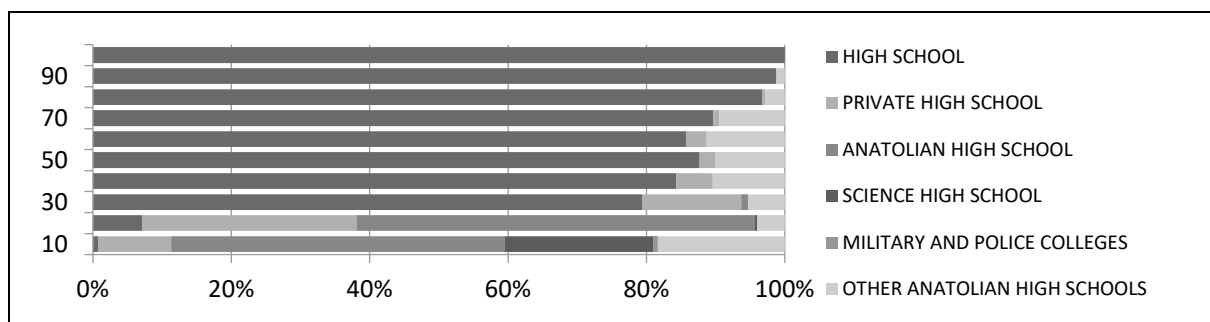

Figure 7. School Types Found in the Percentiles of LYS Quantitative Results – Column Percentages
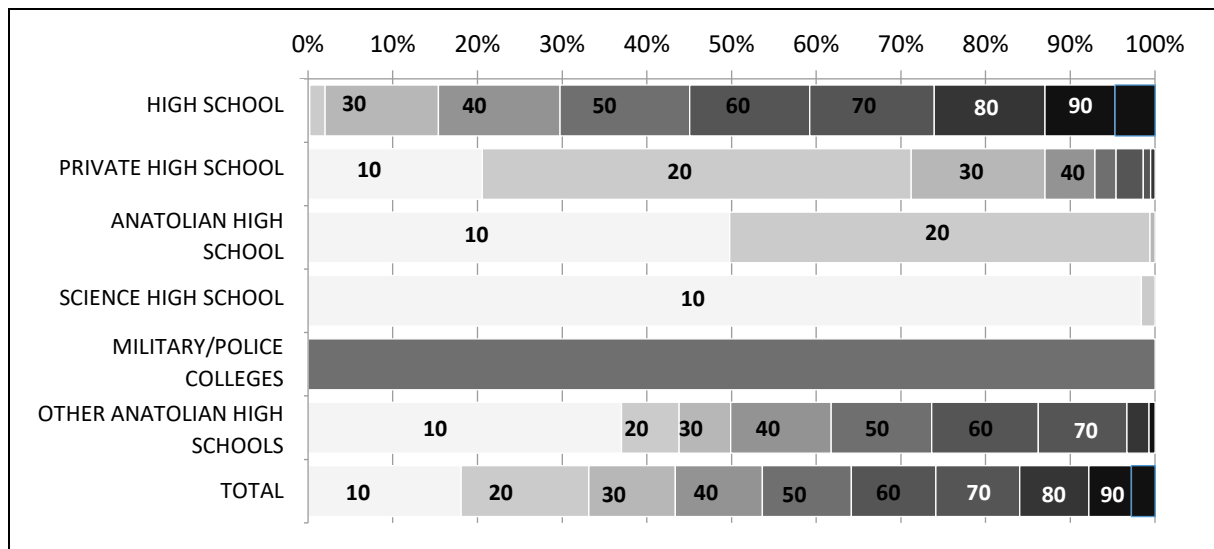
Figure 8. Share of Students in Turkish Schools Found in the Percentiles (ten percent) of LYS Quantitative Results – Row Percentages

As the Figure displays, General High Schools take a very small share in the first 20% segment, do not portray consistency in their percentage segment goals, and most frequently place students in the lowest 30% segment. All of these indicators may be interpreted towards the conclusion that, in Turkey where being a university graduate influences social and economic status greatly (Şengönül, 2007; Köse, 2006), a distinction starting out with school types will crucially affect academic achievement and the achievement of long-term socio-economic status. Moreover, in addition to the role of school type-based distinctions in university placement, that achievement gets visibly divided up and observed through the public and private school distinction points to the strongly class-conscious substructure of education in Turkey.

In order to evaluate educational inequalities more clearly at an upper scale, it is crucial to examine the role of space and geography. To this end, the said distinctions should be analyzed spatially and evaluated over the geography of the country.

A Geographical View of Educational Inequalities: Geographic Distributions of the "Achievement" and the "Failure" at LYS

Up to this point in the discussion, findings have been provided on school types in general in Turkey, and the status of high schools, their being public or private, and, indirectly, the unequal distribution based on socio-economic background. Yet when the distribution of LYS results are evaluated for the geography of the country (at the district level), it is evident that the said unequal distribution is not limited to the school or individual level, and that the inequalities among the cities and even the districts are also readily visible. To illustrate, Figure 9 demonstrates the geographic distribution of those who were placed in four-year degree programs according to the LYS exam results of 2011, and Figure 10 presents the distribution of those who scored below the threshold score (140 points) according to the same results. To remember briefly, in the preparation of the said maps, signed chi-square values, which provide a series of advantages in the comparison of geographical units, have been utilized rather than percentage values. These are basically used to express how signifiers deviate from the expected values, thereby providing a relative listing instead of a scaling. As such, the geographic units under discussion become comparable on equal grounds. If, within the present system, "achievement" in university placement is taken to stand for being accepted into any four-year degree program, and if "failure" suggests scoring below the threshold score, thereby not making it into even two-year programs, these two maps should be representative geographies of "achievement" and "failure" in university placement (or university entrance exam) in Turkey.
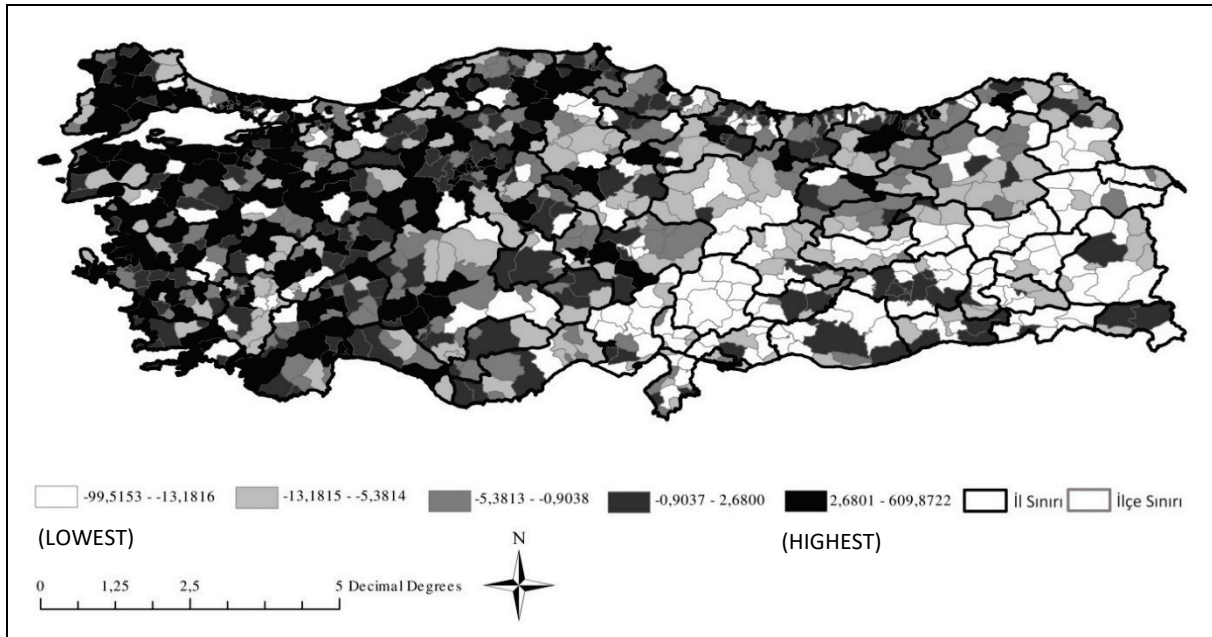
Figure 9. District Level Geographic Distribution of the Students Accepted to a Four-Year Undergraduate Program according to LYS Results in Turkey – Chi-Square Scores
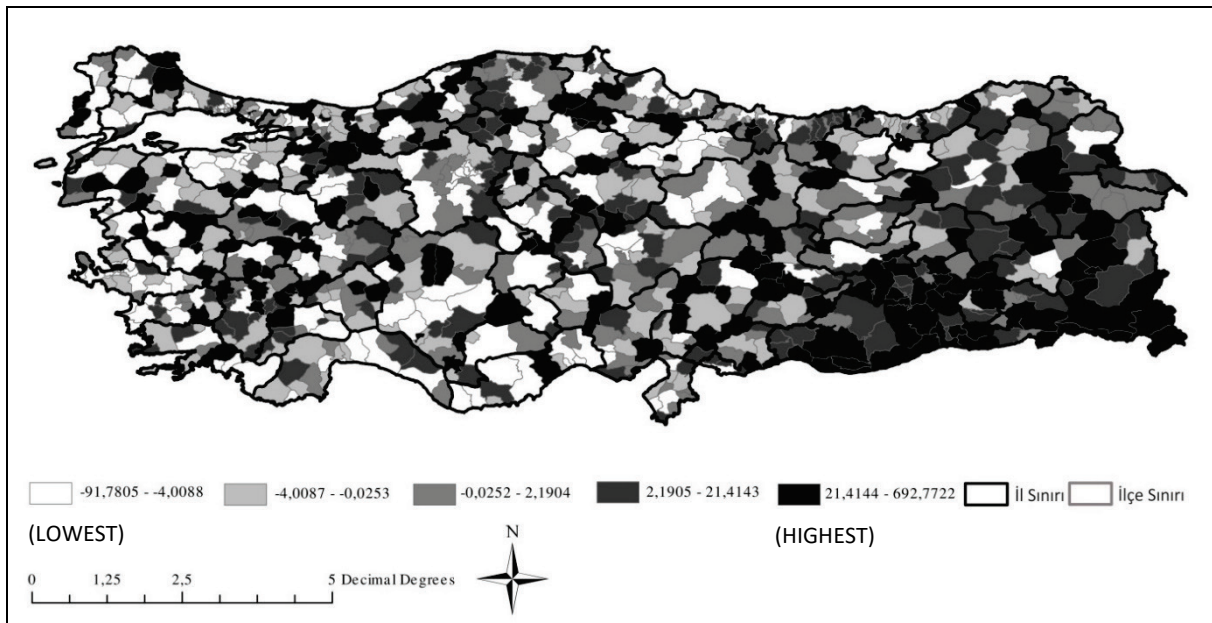

Figure 10. District-Level Geographic Distribution of the Students Failed to get the Treshold Score at LYS in Turkey – Chi-Square Scores

As each of the two maps indicates, regional inequalities in Turkey can be observed merely through the LYS results. As can be seen in Figure 9, majority of the students accepted into four-year degree programs reside in cities in northern and southwestern regions, and locations with the lowest rate are cities and provinces in eastern and southeastern regions. Although the state of scoring below the threshold score, as indicated in Figure 10, seems to be dispersed throughout the country's geography, that it is still clustered in eastern and southeastern regions is reminder on regional inequalities being a major factor in the matter of education. In the provinces of the country towards northern and southern regions, the tendency towards being admitted into four-year degree programs is ascending, but it tends to significantly descend in the eastern parts, and the provinces located in the heart of the country seem to provide a transition between the east and west. Principally, both pictures

depict how well-known and frequently-discussed regional inequalities in Turkey influence the matter of being a university graduate, a tool for the young population to create long-term human capital.

It is beneficial, at this point, to make use of figure information from the previous analysis in the interpretation of the said maps. For example, in the figures explained above, it was clear that school types are clearly influential on LYS achievement. New questionings are necessary to understand whether this situation is significant within the country's geography, whether the achievements of Science and Anatolian High Schools which have succeeded in placing students in the first 10% segment vary geographically, and whether the Public High Schools that seem to score the lowest in most examinations depict different results in varying geographies. Therefore, in order to understand school types according to LYS results, the achievement of these schools in the exam, and the geographic distinctions (if there are any), pointing (clustering) maps for the geography of Turkey at the district level have been obtained. However these maps provide meaningful readings only when they are evaluated along with the patterns acquired through university placement status in Figures 9 and 10. This results from a problem of representation in the reading of the maps. The method used in Figures 9 and 10 evaluates all provinces in a relative system, and presents a listing, thereby leading to findings that are directly compared. Whereas when interpreting pointed distribution maps that depict clustering and scattering, the fact that there are fewer schools in the east than in the west should be kept in mind.

As such, Figures 11 and 12 put forth the geographic distribution of the first 20% segment (first 20th percentile) and the lowest 20% segment (last 20th percentile) of all high schools regardless of school type distinction. It becomes evident that the results obtained through pointing maps are to a great extent compatible with the patterns indicated in Figures 9 and 10. It can, thus, be claimed that successful schools are clustered mostly in the west, specifically in the three major cities (İstanbul, Ankara, and İzmir), and that the schools in the lowest percentage segment are dispersed throughout the country's geography. To put it differently, while the metropoles of the west appear to be places where both success and failure at LYS are clustered, the failure is more widespread and unstable throughout the country.
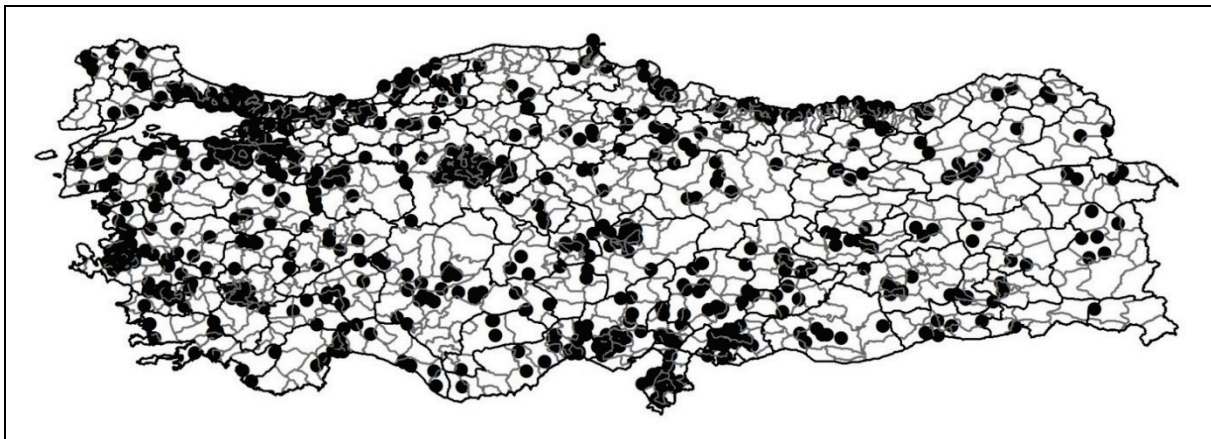

Figure 11. District-Level Geographic Distribution of -the most successful- High Schools Ranked in the First 20th Percentile in Turkey, according to LYS Results

Figure 12. District-Level Geographic Distribution of -the least successful- High Schools Ranked in the Last 20th Percentile in Turkey, according to LYS Results

        Nevertheless it is possible to achieve more significant and detailed findings when clustering maps are formulated according to school types. For instance, among the most important results achieved through prior evaluations is the fact that the country's most successful schools are Science High Schools, Anatolian High Schools, and Private High Schools. The assessment based on percentage segments, too, point to the same schools as being in the first 10% segment (10th percentile) in all qualitative, verbal, and equiponderant fields. For this reason, school type-based clustering maps have been designed for the purpose of defining achievement through these percentage segments and of analyzing the distribution of this over the country. Figure 13 presents the spatial distribution of Anatolian High Schools, other Anatolian High Schools, Science High Schools, and Private High Schools which have placed students into the first 10% segment according to the qualitative LYS results of 2011 at the district level. In other words, the said map indicates the distribution of Turkey's most successful school types over the country's geography. It is noteworthy that all types of successful school groups are located in Ankara, İstanbul, İzmir, and Bursa. The density in Marmara, too, is worth paying attention to. Yet it has to be stated that every geographic region or city has its relatively "successful" schools but there exist relatively fewer schools throughout the east, southeast, central Anatolia, and the south, thereby leading to a representative scattering. In spite of this, one other finding through this map is that only Science High Schools among successful schools do not depict a piling up according to geography. That is, Science High Schools place students into the "most successful" segment wherever they are located in the country. While the location of other types of schools is a determining factor in their achievement, Science High Schools in Turkey should be deemed "successful" independently of geography. Though the said maps were based on the qualitative scores that made achievement more distinguishable, it should be stated that the verbal and equiponderant results did not vary greatly.
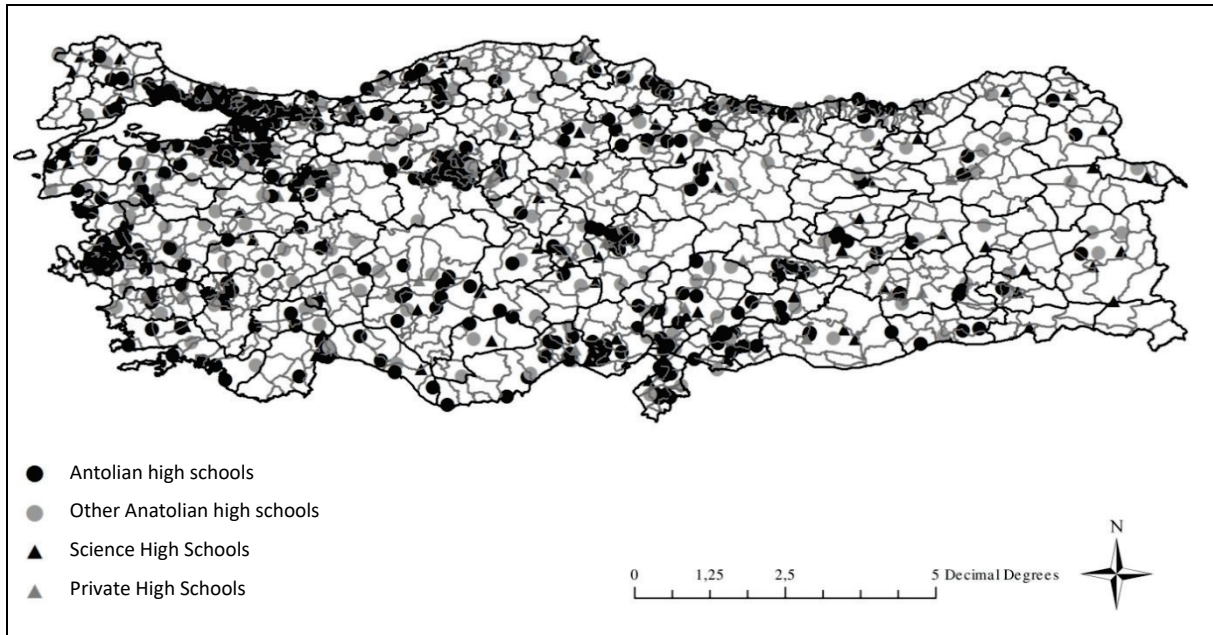
Figure 13. District-Level Geographic Distribution of the High Schools Ranked in the First 10th Percentile in Turkey, according to LYS Results

It is observed, through the conducted analyses that General High Schools are among the school types that almost always score the lowest in all kinds of achievement assessment. To this end, pointing maps that demonstrate the geographic clustering of successful and unsuccessful schools have been drawn in order to understand whether the achievement status of these schools is linked to the geography. Figure 14 represents the geographic distribution of General High Schools with the poorest performance in the exam, and Figure 15 represents that of general high schools with a relatively better performance. To put it more clearly, while Figure 14 puts forth the geographic distribution at district level of public high schools within the lowest 20% segment according to the qualitative results of the LYS in 2011, Figure 15 provides the geographic distribution of public high schools at district level within the first 30% segment according to the same results.
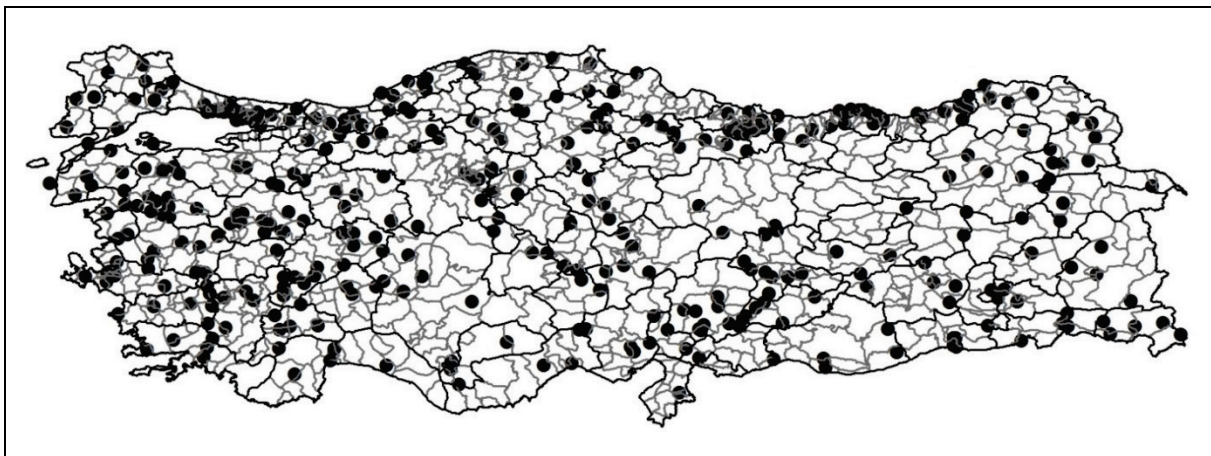

Figure 14. District-Level Geographic Distribution of the Public High Schools Ranked in the Last 20th Percentile in Turkey, according to LYS Results
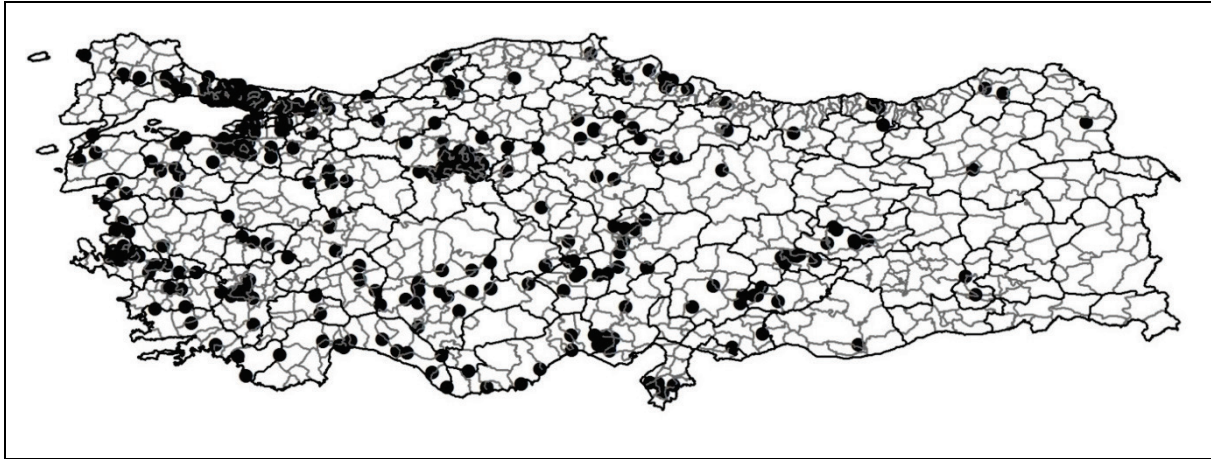
Figure 15. District-Level Geographic Distribution of the Public High Schools Ranked in the First 30th Percentile in Turkey, according to LYS Results

When the two maps are evaluated together, it appears that clustering is more solid on the achievement map and they are in the foreground in the three major cities of the country, namely İstanbul, Ankara, and İzmir. Clustering of the map of failure is more rare and scattered intensifying in İstanbul, Ankara, İzmir, Bursa, eastern parts of the Black Sea region, overlapping with a few schools in the eastern and south-eastern Anatolia. That is, while public high school "achievement" is again concentrated in the metropolitan cities of the west, "failure" is geographically more dispersed.

To repeat for the last time, due to the nature of the pointing congestion or clustering maps, it should be noted that the existence of few successful or unsuccessful school groups in the east of the country is a result of the relatively small number of schools in the region. The exact opposite of this is true for the western regions. Still, however, when this is evaluated along with the signed chi-square patterns that eliminate numeric fallacy, it is observed that the clustering and scattering in the distributions remains stable, and the larger picture of unbalanced distribution pertaining to achievement over the country's geography remains intact. To illustrate, when the pointing maps are compared with signed chi-square patterns, education-based regional differences in the country become evident, yet the relatively better-off western regions have their own segregations, too. What is more, when analyzed on the basis of school types, science high schools that may be regarded "privileged," Anatolian High Schools, and "Private" High Schools remain mostly within the "successful" part of the picture. This, in turn, attests to the existence of not only *de-facto* distinctions on the bases of groups, schools, and classes, but also spatial inequality on the basis of geography. The only exception among these is Science High Schools. Despite the fact that the achievement of Anatolian High Schools and Private Schools among the school types clearly change according to geography (the best being in the three largest cities), the success of Science High Schools operating independently of geography is crucial. In other words, a Science High School has the capacity to place students into the first 20 or 10% segment regardless of where it is located in the country. Yet the exact opposite of this is true for general Public High Schools. The General High Schools which, among all types, are within the lowest group in all geographies can portray relative improvement in achievement only in relation to geography. Undoubtedly, schools in the western part of the country, and especially in the major cities, record more successful exam results for all school types. This suggests that the geographic and school-based inequality in the country may be observed even through exam results.

Discussion, Conclusion and Suggestions

Although the widespread belief that education provides a comfortable status in the society and that it makes climbing the social ladder easy seems to be losing its credibility due to the unemployment among university graduates, it is still possible to define higher education in Turkey as the safest way to avoid poverty. The related international literature emphasizes that, in many countries of the West, the expansion of the middle-class coincides with the belief in getting a good job through attaining a university degree, and that, for this reason, education plays a crucial role not only reaching a higher status in social mobility but also in re-producing present class positions. Yet according to the results achieved in this study, access to higher education, which is one of the safest means in determining one's social position in Turkey, is based on school-based, class-based, and geographic inequalities. In other words, the way to raise one's social and economic status is, to a great extent, accessible by the socially and economically high-status graduates of the socially and economically powerful regions. This makes it evident that the links among education, socio-economic status, and long-term growth are trapped in rather a "vicious circle" at the present. Findings of the study emphasize that for an individual from a disadvantaged region and school to attain higher social status, he/she has to break this vicious circle.

It should also be noted that university degrees or higher education cannot solve all the social and economic problems of the society or guarantee a just social order. However, higher education still remains today as the safest means for the young population to achieve social and human development, to discover their skills, and to add to it an academic proficiency, thereby acquiring an effective position in the labor force market in the long run. To this end, it is crucial for Turkey devise a government policy, or a policy of growth, of development through which higher education can be made accessible to different social, economic, and cultural groups, regardless of the family background, class-based or regional positions of these groups. The high income inequality remains a major problem in Turkey. According to TURKSTAT's (2015) up-to-date bulletin, the highest 20% income group receives a 45.9% share of the total income (equivalent useable household income), while the same share for the lowest 20% group is merely 6.2%. This suggests that the wealthiest group of the society possesses 7.4 times more income than the poorest group. In the viewpoint of Goldthorpe (1980), the basic signifier of physical and human capital in a country is the income inequality in that country. When access to education is considered in this framework, it becomes evident that, in countries with high income inequality, access to higher education is more a matter of individuals' social and economic backgrounds. According to PISA, England, United States of America, and Italy are some of the clearest examples to this case (OECD, 2012d). Based on the PISA 2012 results (OECD, 2012a, 2012b, 2012d), in the northern countries such as Finland, Norway, and Denmark where income inequality is at its lowest, individuals' quality of education and achievements are determined independently of their social and economic backgrounds and the geographies in which they live. The PISA depicts that academic achievement in such countries is related directly to the individual's own skills, abilities and with Sen's (1988) terms "capabilities". In Asian countries, like Korea and Japan for instance, education has formed the basis of long-term national development strategies. PISA 2012 results depicts that even individuals living in the most disadvantaged regions with the lowest socio-economic infrastructure score above other countries' performance. The foundation of advanced technology and innovation in these countries, too, has, since the distant past, rested on the basic government policy of making high-quality education accessible to all sections of the society.

As such, at a time when inequalities in all fields are growing, decision-makers aiming to create long-term economic growth and powerful human capital should consider equal access to higher education and high-quality education as a part of national policy, and should provide the young population with opportunities independent of geography and personal background in order to bring up a future generation of innovative, technology-based, high-quality young people. This may take as its starting point, like this study puts forth, the identification of weaknesses, or groups of priority, in access to higher education. Two principal matters in access to higher education have been provided by this study. One of these is the significant differences in "achievement" between public and private high

schools in the country, and the school type basis of education. The other is the advantages and disadvantages in university placement caused by the geography. Moreover, as has been mentioned in the theoretical framework, in a globalizing economy and world order, personal characteristics become ever more important, and individuals willing to integrate into the global work force are required to have achieved certain standards in education. Therefore, one of the most basic findings of the study is the existence of disadvantaged groups in access to higher education in Turkey and these disadvantages can be basically defined on the basis of school-types and the geography that they live in. In the related literature, however, there is a common view that the individual and social and economic benefits of providing these groups with more equal educational opportunities would be considerably higher in the long run (Psacharopoulos & Patrinos, 2004; Dale & Robertson, 2002). In doing this, it should be considered by the decision makers that the low-quality and low-level education of the disadvantaged groups in the country will become rarer in the long-run but that this might lead to other social, economic, and cultural problems.

The issue of education in Turkey is, undoubtedly, closely linked to population dynamics. In Turkey where the demographic transition period is almost complete and where the total population is closer to stability, the ratio of the young population within the total population is expected to gradually decrease, and the ratio of the productive population of ages 15 to 64 and of the old is expected to keep increasing for some more time (Turkish Industry & Business Association [TÜSİAD], 1999). It is widely known, however, that this trend provides a series of opportunities. The economic growth resulting from the increase in labor force and household population that the Eastern Asian countries experienced in the 1970s is observed to a certain extent in Turkey at the present. The pioneering examples to this are the developments in the construction sector and the increase in demands for durable consumer goods within the recent decade. Nevertheless, this transition period should not be regarded a secure means for rapid economic growth. This period should express, for the whole of the country, a transition from qualitative to quantitative betterment and a chance to change status in global networks. If the said opportunity may be utilized in the field of education, Turkey could change from a country with widespread cheap labor force into one with high-quality, innovative, information technologies-friendly labor force that can easily secure a place for itself in the global labor force. To this end, it is obligatory to scrutinize the fields that create short- and long-term inequalities in education, as this study has clearly presented.

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Appendix 1. Share of the Private High Schools in All High Schools of Turkey by Cities - %